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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,338	07/19/2001	Bin He		9606

7590 10/03/2003  
BIN HE  
695 CAVALCADE CIRCLE  
NAPERVILLE, IL 60540

EXAMINER

DROESCH, KRISTEN L

ART UNIT PAPER NUMBER

3762

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/909,338

Applicant(s)

HE, BIN

Examiner

Kristen L Droesch

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CH

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed 9/18/01 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### *Specification*

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: electrical activities originating in the brain (claim 5); cellular action potentials, excitation rules, and inhomogeneity properties of the brain (claim 11); patch model of a biological system (claim 9).

### *Claim Objections*

3. Claim 11 is objected to because of the following informalities: "of brain" in line 4. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the recitation "using different procedures" is indefinite. What are the different procedures? The examiner suggests changing the claim the last clause of the claim to read --together with other imaging results on the system obtained by using at least one other imaging device.--

Claim 13 recites the limitation "the three dimension space of the system" in line 6. There is insufficient antecedent basis for this limitation in the claim. The examiner suggests adding --three dimensional-- prior to "biological system" in line 1.

Claim 13 recites the limitation "the cross-sections of the system" in line 10. There is insufficient antecedent basis for this limitation in the claim. The examiner suggests changing the last clause to read --means for displaying on cross-sections of the three dimensional biological system the estimated electrical source distribution and excitation sequence within the three dimension space of the system, together with other imaging results on the. . . --

6. Claim 18 provides for the use of the apparatus for imaging, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

#### ***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claim 18 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex*

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*parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Allowable Subject Matter***

9. Claim 1-17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The prior art of record fails to teach or suggest a method or device including the steps or means for determining geometry information of the system; means for estimating electrical source distribution *and excitation sequence* within the three dimension space of the system by minimizing the difference between detected signals and source model generated signals over the same sensor positions over a *certain time epoch* and means for displaying the estimated electrical source distribution *and excitation sequence* together with other imaging data.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Amir et al. (5,701,909) shows a device and method of estimating and nervous system generator parameters of interest using Brain Generator Source Characterization Computations (B-GSC) and Finite Element Modeling (FEM) or Boundary Element Modeling (BEM) . Amir et al. also teaches estimating electrical source distributions by using weighting; the electrical source model comprises a three dimensional distribution of electric potentials and estimating electrical source distributions by minimizing the difference between recorded potentials and the estimated potentials generated by the source model. However, Amir et al. fails to show determining geometry information of the system and estimating electrical source distribution *and excitation sequence* within the system by minimizing the difference between recorded potentials and the

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estimated potentials generated by the source model over a *certain time epoch*. Tucker et al. (6,330,470) shows a device and method similar to Amir et al., but also fails to show determining geometry information of the system and estimating electrical source distribution *and* excitation sequence within the system by minimizing the difference between recorded potentials and the estimated potentials generated by the source model over a *certain time epoch*. Jewett et al. (5,687,724) shows a similar device and method to Amir et al. and Tucker et al. but also fails to show determining geometry information of the system and estimating electrical source distribution *and* excitation sequence within the system by minimizing the difference between recorded potentials and the estimated potentials generated by the source model over a *certain time epoch*. Armoudas et al. (6,370,412) shows a device and method for locating an arrhythmic ablation site. The process requires determining the relative location of the electrical source at a multiplicity of time epochs and fitting the acquired data to a moving dipole model and determining the relative location of a moving dipole that is parallel to the moving dipole model. Branham et al (5,687,737) shows utilizing an electrode array on the surface of the heart, constructing a model of the system based on photographic or MRI images to display the depolarization waves and potential distribution of the heart on the heart model. Beavin (5,273,038) shows utilizing an electrode array on the surface of the body, constructing a model of the system based on MRI, NMR, or CT data and displaying a simulation of the heart based on the model and the signals collected from the electrode array on the surface of the body. Beatty et al. (6,240,307) shows generating three dimensional and two dimensional maps of heart activity utilizing an electrode catheter. Govari (6,400,981) shows generating maps of the endocardial surface electrical potentials based on position signals and electrical potentials measured by an

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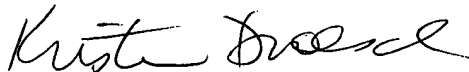
electrode catheter in the heart and computing electrical potentials utilizing a dipole model, the position signals and the measured electrical potentials. Van Veen et al. (5,263,488) shows utilizing an electrode array to measure electrical potentials on the surface of the head over time and processing the signals to identify the number, location, relative power and dipole moment orientation of several discrete sources in the brain

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristen L Droesch whose telephone number is 703-605-1185.

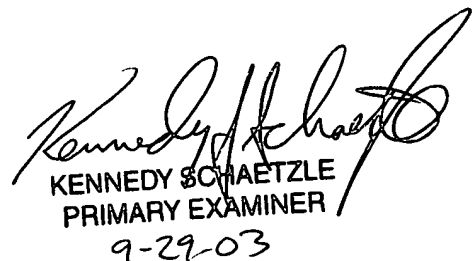
The examiner can normally be reached on M-F, 10:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angie Sykes can be reached on 703-308-5181. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



kld



KENNEDY SCHAETZLE  
PRIMARY EXAMINER  
9-29-03